



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
AUGUST 5, 2004 – 9:00 A.M.
AERONAUTICS COMMISSION ROOM**

Present: L. E. Tibbits J. C. Friend J. Polasek
B. J. O'Brien M. VanPortFleet J. D. Culp
M. Chaput J. W. Reincke T. Fudaly
C. Bleech T. Anderson

Absent: C. Roberts E. Burns

Guests: M. Bott B. W. Ness T. Hynes
P. Corlett J. Morena D. Spencley
A. Uzcategui

OLD BUSINESS

1. **Approval of the Minutes of the July 1, 2004, Meeting – L. E. Tibbits**

The minutes of the July 1, 2004, meeting were approved.

2. **Guidelines for Truck Mounted Attenuators by Maintenance Work Forces (See July 1, 2004, Minutes, New Business, Item 4) – D. Spencley**

Editorial revisions were made to the guidelines following comments received at the July EOC meeting. The regions reviewed and approved the changes.

ACTION: The guidelines are approved for distribution.

NEW BUSINESS

1. **Ground Driven Sign Supports for Temporary Signs – M. Bott**

A series of typicals have been developed for ground driven sign supports for temporary signs, pulling information together from several sources. They typicals provide several options for contractors under a variety of conditions. Information regarding support spacing, bottom height and offset, and sign placement is given to assure uniformity in placement of these types of temporary signs and to also ensure conformance to NCHRP 350 crash criteria and the Michigan Manual of Uniform Traffic Control Devices.

The typicals were reviewed by industry and have the support of the Traffic Recommendation Committee. They will compliment existing temporary signing standards previously approved by EOC.

ACTION: The typicals are approved and will be placed with the other Traffic and Safety typicals. A guide for use will be developed and housed on the

Traffic and Safety's website. Dual links will be created between the Design and Traffic and Safety websites.

2. **Revision of Existing Bridge Connections for Signs (VIII-800, 810, 820, 830 and 840) and Addition of New Bridge Connections for Signs (VIII-850, 860, 870, 880, and 890) – M. Bott and A. Uzcategui**

A consultant was hired to review and check all bridge connections for sign supports on bridges. The consultant developed revisions for existing bridge connections and new bridge connections for signs to ensure conformance to the 2002 AASHTO Standard Specifications. A department review team oversaw the effort.

ACTION: The revisions and additions to the bridge connections for signs are approved.

3. **Revised Traffic and Safety Notes – M. Bott**

The present Traffic and Safety Notes are outdated. They contain information that is duplicated in other documents and manuals. Current practices are not reflected in the notes, which have an inconsistent format and need to be standardized.

These notes describe procedures and practices, and give technical guidance to personnel involved in traffic and safety operations.

The revised notes reflect current 2004 practices. A total of 97 notes were revised and 77 notes were deleted. A standard format was adopted for all notes, which were reorganized into fewer sections.

ACTION: The revised notes are approved with EOC clarifications and requested revisions noted. Notes covering access management will be reviewed and further developed, as needed. Notes requiring substantial changes will be resubmitted to EOC for approval.

4. **Pavement Selection: I-94 Rehabilitation, CS 77111, JN 72406 – B. O'Brien**

The rehabilitation alternates considered were an HMA pavement (Alternate 1 – Equivalent Uniform Annual Cost [EUAC] \$45,216/directional mile) and a jointed plain concrete pavement (Alternate 2 – EUAC \$41,445/directional mile).

A life cycle cost analysis was performed and Alternate 2 was approved based on having the lowest EUAC. The jointed plain concrete pavement design and cost analysis are as follows:

7" (177.8mm).....	Jointed Plain Concrete Pavement (14' jt spacing)
	(Mainline Inside/Outside Shoulders)
1" (25.4mm).....	HMA Separator layer (spec.) (Mainline, Inside/Outside shoulders)
	Under Drain System
9" (228.6mm).....	Repaired Concrete
8" (203.2mm).....	Total Thickness

Present Value Initial Construction Costs	\$528,080/directional mile
Present Value Initial User Costs	\$42,654/directional mile
Present Value Maintenance Costs.....	\$34,620/directional mile
Equivalent Uniform Annual Cost	\$41,445/directional mile

5. **Ride Quality Specification – B. Ness/T. Hynes**

The FHWA raised their concerns about the specification and our ability to verify the contractor's work. In response to this, several major changes were incorporated into the new specification, which was developed with support and review from industry and FHWA. The new specification also incorporates a conversion from RQI to IRI (International Roughness Index), while maintaining the current specification level for acceptable ride. The new specification does not allow for incentive payments.

The Ride Quality Committee, citing the number of major changes and the substantial impact that could be derived for the department and our contractors, recommends that the specification be "shadowed" instead of fully implemented for the 2005 construction season.

FHWA noted that progress is being made and this is a good step toward compliance.

ACTION: EOC approves the specification changes that will shadow the ride quality specification in 2005.

6. **Use of Yellow LED Signal Indications – M. Bott and P. Corlett**

EOC previously approved the use of green and red LED signal indications. The yellow LED signal indications do not currently meet ITE specifications, but the specification may be revised in the near future allowing yellow indications that are 2.5 times brighter than the red indications.

It is proposed that yellow LED indications be approved for use. This would fulfill the need for an all LED signal indication system, especially for single point urban interchanges. A battery backup system can be used to power LED signals during a power outage.

ACTION: The recommendation to replace yellow incandescent bulbs with yellow LED indications is approved for use on all new and modernized signals.

7. **Power Outages at Single Point Urban Interchanges (SPUI) – M. Bott and P. Corlett**

The operation of SPUI type interchanges, which are larger and more complex than typical signalized intersections, may create unusual difficulties for drivers during power outages. The signal operation is key to providing safe operations of the interchange. A battery backup system will provide continuous signal operation during a power outage, but only for a limited time. Additional backups can be accomplished by adding generator power that is filtered through the battery backup system.

There are three SPUIs under construction. Each affected region has requested a backup power system for continued signal operational during general power outages. Signals should utilize red, yellow, and green LED indications to reduce power consumption and allow a battery backup system to be used.

The Traffic Recommendation Committee recommends approval of the proposal.

ACTION: The proposal is approved. Regions with SPUI type interchanges must develop an emergency maintaining traffic plan in the event of a catastrophic failure.

8. **Changes in Standard Location for Shoulder Corrugations (Rumble Strips) From the Current 12" and 24" From the Lane Edge to 6" – J. Morena and M. Bott**

The original locations for shoulder corrugations were based on a concern for the shoulder/joint strength and the convenience for snowplow drivers. Other states have now shown there is a significant safety benefit to placing the shoulder corrugations closer to the lane. They have experienced dramatic reductions in drift-off crashes because the rumble effect closer to the lane provides more recovery time for the driver who strays onto the shoulder.

It is recommended that the standard shoulder corrugation location be changed to 6" from the lane edge. On new 14' concrete lanes, rumble strips will be placed 4" from the edge of the driving lane.

ACTION: The recommendation is approved. The standard plan will be revised.

(Signed Copy on File at C&T)

Jon W. Reincke, Secretary
Engineering Operations Committee

JWR:kar

cc:	G. J. Jeff	S. Mortel	J. Steele (FHWA)
	K. Steudle	D. Jackson	A. C. Milo (MRBA)
	L. Hank	W. Tansil	G. Bukoski (MRBA)
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